

Nos. 2015-1068

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

CORNING INCORPORATED

Appellant,

v.

DSM IP ASSETS B.V.

Appellee.

On Appeal From The United States
Patent & Trademark Office Patent Trial
And Appeal Board No. IPR2013-00049

BRIEF OF APPELLEE DSM IP ASSETS B.V.

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FORM 9. Certificate of Interest

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUITCorning Incorporated v. DSM IP Assets B.V.No. 15-1068**CERTIFICATE OF INTEREST**

Counsel for the (petitioner) (appellant) (respondent) (appellee) (amicus) (name of party)

DSM IP Assets B.V. certifies the following (use "None" if applicable; use extra sheets if necessary):

1. The full name of every party or amicus represented by me is:

DSM IP Assets B.V.

2. The name of the real party in interest (if the party named in the caption is not the real party in interest) represented by me is:

DSM IP Assets B.V.; DSM Desotech Inc.

3. All parent corporations and any publicly held companies that own 10 percent or more of the stock of the party or amicus curiae represented by me are:

DSM N.V.4. ☒ The names of all law firms and the partners or associates that appeared for the party or amicus now represented by me in the trial court or agency or are expected to appear in this court are:Sharaon A. Israel, Joseph A. Mahoney, Erick J. Palmer and Kyle E. Friesen of Mayer Brown LLP11/4/2014

Date

/s/ Sharon A. Israel

Signature of counsel

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Printed name of counsel

Please Note: All questions must be answered

cc: _____

TABLE OF CONTENTS

	Page
CERTIFICATE OF INTEREST	i
TABLE OF CONTENTS.....	ii
TABLE OF AUTHORITIES	v
STATEMENT OF RELATED CASES.....	ix
JURISDICTIONAL STATEMENT	1
STATEMENT OF THE ISSUES	2
STATEMENT OF THE CASE.....	4
STATEMENT OF FACTS	6
I. Background of the '189 Patent.....	6
II. Claimed Properties at Issue	12
A. Change in Length When Heated.....	13
B. Modulus of Elasticity.....	15
C. The Claimed Adhesion Property	17
SUMMARY OF ARGUMENT	21
STANDARD OF REVIEW	23
ARGUMENT.....	25
I. Substantial Evidence Supports the Board's Conclusion That Corning Failed to Prove That Its "Change in Length" Test Method Was Reliable.....	26
A. The Board's Decision Not to Credit Corning's Evidence Is Supported by the Record and Entitled to Deference	26
B. The Board's Decision Was Based on Sound Legal Reasoning, and Corning Fails to Show Otherwise	31
C. The Board Did Not Engage in Claim Construction Regarding How to Determine "Change in Length," Nor Did It Need to Do So.....	34
D. The Board's Decision to Institute Is Consistent with Its Final Written Decision	35

TABLE OF CONTENTS

(continued)

	Page
II. Substantial Evidence Supports the Board’s Finding That Corning Failed to Show Shustack Inherently Discloses the Claimed “Modulus of Elasticity” Limitations	36
A. EBECRYL® 284 Would Not Be, at Once, Envisaged from the “Almost Infinite” Genus Disclosed by Shustack	38
1. Shustack Discloses a Broad Class of Oligomers.....	38
2. Shustack Does Not Disclose EBECRYL® 284.....	39
3. Corning’s Argument Regarding “Commercial Availability” Is Unsupported, Untimely, and Unavailing	42
B. The Class of Oligomers Disclosed by Shustack Does Not Inherently Result in a Coating with the Claimed Modulus of Elasticity.....	43
III. Substantial Evidence Supports The Board’s Finding That Corning Failed to Prove Szum and Shustack Inherently Disclose the Claimed Adhesion Property.....	45
A. The Board’s Decision Is Supported by Substantial Evidence Under Any Construction of “Moisture.”	46
1. The Board’s Decision Correctly Focused on Delamination Caused by Hydrodynamic Forces	48
2. The Relevance of Corning’s Test Evidence Is Part of the Board’s Analysis of Anticipation and Obviousness, Not Claim Construction.....	52
3. Substantial Evidence Supports The Board’s Finding That Corning’s Peel Test Results Did Not Show Resistance to Hydrodynamic or Hydrolytic Forces That Cause Delamination	54

TABLE OF CONTENTS

(continued)

	Page
a) The Evidence Supports the Board's Finding That Corning's Wet Adhesion Test Does Not Evaluate for Delamination Caused by Hydrolysis.....	55
b) The Board Properly Found Corning's Evidence Unpersuasive.....	57
4. Even Understood as Claim Construction, the Board's Decision Is Based on Factual Findings from Extrinsic Evidence and Therefore Entitled to Deference	61
B. The Board's Construction of "Moisture" Was Correct	62
1. The Board Correctly Construed Moisture in View of the Specification	63
2. The Extrinsic Evidence Also Supports the Board's Construction of Moisture	67
CONCLUSION	70

TABLE OF AUTHORITIES

Page(s)

Cases

<i>In re Abbott Diabetes Care Inc.</i> , 696 F.3d 1142 (Fed. Cir. 2012)	24
<i>Activevideo Networks, Inc. v. Verizon Commc'ns, Inc.</i> , 694 F.3d 1312 (Fed. Cir. 2012)	23
<i>Agilent Techs., Inc. v. Affymetrix, Inc.</i> , 567 F.3d 1366 (Fed. Cir. 2009)	44
<i>In re Am. Acad. of Sci. Tech Ctr.</i> , 367 F.3d 1359 (Fed. Cir. 2004)	26
<i>Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.</i> , 776 F.2d 281 (Fed. Cir. 1985)	29, 58
<i>Atofina v. Great Lakes Chem. Corp.</i> , 441 F.3d 991 (Fed. Cir. 2006)	39
<i>In re Buszard</i> , 504 F.3d 1364 (Fed. Cir. 2007)	62
<i>Chevron USA Inc. v. Natural Res. Defense Council, Inc.</i> , 467 U.S. 837 (1984)	59
<i>Comark Commc'ns v. Harris Corp.</i> , 156 F.3d 1182 (Fed. Cir. 1998)	57
<i>Consol. Edison Co. v. Nat'l Labor Relations Bd.</i> , 305 U.S. 197 (1938)	24
<i>Cross Med. Prods., Inc. v. Medtronic Sofamor Danek, Inc.</i> , 424 F.3d 1293 (Fed. Cir. 2005)	59
<i>In re Cuozzo Speed Techs., LLC</i> , No. 2014-1301, 2015 U.S. App. LEXIS 1699 (Fed. Cir. Feb. 4, 2015)	24, 61, 67

<i>In re Gartside</i> , 203 F.3d 1305 (Fed. Cir. 2000)	23, 24, 46, 54, 57
<i>Graham v. John Deere Co. of Kansas City</i> , 383 U.S. 1 (1966)	23
<i>Hayes v. Dep’t of the Navy</i> , 727 F.2d 1535 (Fed. Cir. 1984)	69
<i>Jaskot v. Principi</i> , 58 F. App’x 839 (Fed. Cir. 2002)	69
<i>Koito Mfg. Co. v. Turn-Key-Tech, LLC</i> , 381 F.3d 1142 (Fed. Cir. 2004)	32
<i>In re Kotzab</i> , 217 F.3d 1365 (Fed. Cir. 2000)	24
<i>L.E.A. Dynatech, Inc. v. Allina</i> , 49 F.3d 1527 (Fed. Cir. 1995)	69
<i>Leo Pharm. Prods. Ltd. v. Rea</i> , 726 F.3d 1346 (Fed. Cir. 2013)	65
<i>Med. Instrumentation and Diagnostics Corp. v. Elekta AB</i> , 344 F.3d 1205 (Fed. Cir. 2003)	23, 52
<i>Metabolite Labs., Inc. v. Lab. Corp. of Am. Holdings</i> , 370 F.3d 1354 (Fed. Cir. 2004)	39, 40
<i>Multiform Desiccants, Inc. v. Medzam, Ltd.</i> , 133 F.3d 1473 (Fed. Cir. 1998)	48
<i>Noelle v. Lederman</i> , 355 F.3d 1343 (Fed. Cir. 2004)	54
<i>In re NTP</i> , 654 F.3d 1279 (Fed. Cir. 2011)	48, 54
<i>In re Oelrich</i> , 666 F.2d 578 (C.C.P.A. 1981)	44

<i>In re Petering</i> , 301 F.2d 676 (C.C.P.A. 1962)	39
<i>Phillips v. AWH Corp.</i> , 415 F.3d 1303 (Fed. Cir. 2005) (<i>en banc</i>)	51, 63, 70
<i>Playtex Prods., Inc. v. Procter & Gamble Co.</i> , 400 F.3d 901 (Fed. Cir. 2005)	35, 52
<i>In re Robertson</i> , 169 F.3d 743 (Fed. Cir. 1999)	37
<i>Teva Pharm. USA, Inc. v. Sandoz, Inc. (Teva I)</i> , 723 F.3d 1363 (Fed. Cir. 2013), <i>vacated on other grounds</i> by 135 S. Ct. 831 (2015)	47, 52, 53
<i>Teva Pharm. USA, Inc. v. Sandoz, Inc. (Teva II)</i> , 574 U.S. ___, 135 S. Ct. 831 (2015)	24, 61
<i>In re Translogic Tech., Inc.</i> , 504 F.3d 1249 (Fed. Cir. 2007)	63
<i>Trintec Indus., Inc. v. Top-U.S.A. Corp.</i> , 295 F.3d 1292 (Fed. Cir. 2002)	37
<i>U.S. Philips Corp. v. Windemere Corp.</i> , 861 F.2d 695 (Fed. Cir. 1988)	31
<i>Velander v. Garner</i> , 348 F.3d 1359 (Fed. Cir. 2003)	25, 26, 31
<i>In re Wands</i> , 858 F.2d 731 (Fed. Cir. 1988)	35
<i>Yorkey v. Diab</i> , 601 F.3d 1279 (Fed. Cir. 2010)	25, 33, 69
<u>Statutes</u>	
35 U.S.C. § 312(a)(3)	28, 33
35 U.S.C. § 316(a)(4), (10)	59

Other Authorities

37 C.F.R. § 42.65(a)	26, 35
37 C.F.R. § 42.71.....	43
Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,767 (Aug. 14, 2012).....	59

STATEMENT OF RELATED CASES

Pursuant to Federal Circuit Rule 47.5, DSM IP Assets B.V. (“DSM”) provides this statement of related cases.

The appeal in Case Nos. 2015-1169, -1170, currently pending before this Court, also involves U.S. Patent No. 6,298,189 (the “189 patent”). Case Nos. 2015-1169, -1170 and this case have been designated companion cases, and there is overlap between the issues in that case and this one. No other appeal involving the ’189 patent is or has been previously before this or any other appellate court. No other appeal in or from *inter partes* review IPR2013-00049 before the Patent Trial and Appeal Board (“Board”) was previously before this or any other appellate court.

In addition, the following cases are known to counsel to be pending in this or any other court that will directly affect or be directly affected by this Court’s decision in the pending appeal:

1. Appeal No. 2014-1730 before this Court is an appeal from IPR2013-00045 before the Board involving U.S. Patent No. 6,339,666 (the “666 patent”), which issued from a continuation of the application that issued as the ’189

patent. Appeal No. 14-1730 and this case have been designated companion cases, and there is overlap between the issues in that case and this one.

2. *Corning Incorporated v. DSM Desotech, Inc. and DSM IP Assets B.V.*, Civil Action No. 14-cv-01081 before the United States District Court for the District of Delaware involves claims relating to the '666 patent and the '189 patent.
3. *DSM Desotech, Inc. and DSM IP Assets B.V. v. Corning Incorporated*, Civil Action No. 14-08111 before the United States District Court for the Northern District of Illinois involves claims relating to the '666 patent and the '189 patent.

JURISDICTIONAL STATEMENT

DSM IP Assets B.V. agrees with Corning's Statement of Jurisdiction.

STATEMENT OF THE ISSUES

1. Whether substantial evidence supports the Board's determination that Corning failed to show by a preponderance of the evidence that combinations of inner and outer coatings of Shustack and Szum meet the "change in length when heated" limitation required by 53-66 of the '189 patent, where the Board found Corning's evidence not credible because Corning failed to show the "eye-balling" method it used was reliable and rigorous?
2. Whether substantial evidence supports the Board's finding that Corning failed to prove that Example X of Shustack inherently possesses the "modulus of elasticity" required by claims 53-66 of the '189 patent, where the record evidence shows Shustack discloses a broad genus of oligomers that do not inherently possess the claimed modulus and does not identify the specific oligomer (EBECRYL® 284) Corning used?
3. Whether substantial evidence supports the Board's determination that Corning failed to prove that either Szum or Shustack inherently discloses "sufficient adhesion to said glass fiber to prevent delamination in the presence of moisture," as recited in

claims 53-55 and 59-61 of the '189 patent, where (a) the so-called “wet adhesion test” employed by Corning measures the mechanical force required to peel a coating composition from a glass substrate and not the resistance to delamination from hydrolysis and, furthermore, (b) the test Corning used did not expose coatings to liquid water, as required under the correct construction of “moisture”?

STATEMENT OF THE CASE

Corning's Statement of the Case includes unsupported factual allegations and argument. DSM provides this alternative Statement of the Case, and addresses facts of record and argument in the appropriate sections of this Brief.

This case involves an appeal by Corning from the decision of the Patent Trial and Appeal Board (the "Board") denying Corning's petition to cancel claims 53-66 of U.S. Patent No. 6,298,189 (the "'189 patent").

DSM IP Assets B.V. is the owner by assignment of the legal rights in and to the '189 patent. On November 15, 2012, Corning filed a petition for *inter partes* review of claims 53-66 of the '189 patent based on anticipation by or obviousness over Published PCT Application WO 95/15928 to Szum ("Szum"),¹ U.S. Patent No. 5,352,712 to Shustack ("Shustack"), Published PCT Application WO 96/28396 to Szum, and U.S. Patent No. 4,900,126 to Jackson et al. ("Jackson"). A203, A211-14.

¹ The record contains references to "Szum '15928," which was used in the proceedings before the Board to distinguish Published PCT Application WO 95/15928 to Szum from the Published PCT Application WO 96/28396 to Szum. However, since argument relating to Published PCT Application WO 96/28396 to Szum is not at issue in this appeal, this Brief refers to WO 95/15928 as "Szum."

On May 13, 2013, after DSM filed a preliminary response, the Board instituted trial on all grounds proposed in Corning's petition, which are shown by the following table:

Reference(s)	Grounds	Claims
Shustack	Anticipation or Obviousness	53, 54, 56, 57, 59, 60, 62, 63, 65, and 66
Szum	Anticipation or Obviousness	53-58, 65, and 66
Szum and Shustack	Obviousness	59-64
Szum and WO 96/28396 to Szum	Obviousness	59-64
Shustack and Jackson	Obviousness	55, 58, 61, and 64

A321-24, A339-40.

The parties were involved in ten co-pending *inter partes* review proceedings, which the Board handled in parallel. *See, e.g.*, A348-50. The Board also consolidated all of the cases for oral argument in a single hearing. *See* A804.

On May 9, 2014, the Board issued its Final Written Decision. The Board denied Corning's petition to cancel claims 53-66 of the '189 patent because Corning failed to prove the cited references inherently disclose (a) the claimed adhesion property recited in claims 53-55 and 59-61; (b) the modulus of elasticity required by claims 53-66; and (c) the

change in length when heated, also required by claims 53-66. A16-25; A28-33; A34-46.

The Board, in its Final Written Decision, also dismissed-in-part and denied-in-part DSM's motion to exclude evidence, dismissed Corning's motion to exclude evidence, and denied DSM's contingent motion to amend without prejudice. A3, 51-53.

Corning filed a Request for Rehearing seeking reconsideration of the Board's decision regarding claims 56-58 and 62-64 on June 7, 2014. A935, A937. On July 11, 2014, the Board denied this request. A55, A65.

Corning now appeals the Board's final decision on claims 53-66.

STATEMENT OF FACTS

1. Background of the '189 Patent

The '189 patent issued on October 2, 2001, from an application filed on March 6, 1998, and it claims priority through a chain of continuation-in-part applications to an application filed on November 8, 1996. *See* A67, A80 at 1:8-15.

The '189 patent generally relates to special purpose coating compositions used to protect the optical glass fibers used in

telecommunications networks. *See* A1193-94 ¶¶ 10-12; A4300 ¶ 25; A80 at 1:18-21; A113 at 67:36-38. Coating compositions like the ones in the '189 patent are generally used in combinations of two coatings: a soft inner primary coating and a hard outer primary coating.²*See* A1194-95 ¶¶ 14-15. The inner primary coating layer directly contacts and surrounds the glass of the fiber; the outer primary coating layer, in turn, surrounds and directly contacts the inner primary coating layer. *Id.* ¶ 14.

Optical glass fibers can be combined into ribbons of multiple coated fibers using polymeric matrix materials. A4301 ¶ 26. Around the time of the invention, the use of these ribbons was growing. *Id.* The fiber optic network was growing, too, as public use of the Internet expanded and web browsers became more widely available. *Id.*

As new fiber was installed to expand a network, it had to be spliced to the existing fiber network. A4301-02 ¶ 27. Before being spliced, the ribbons had to be stripped of their coatings to expose the bare fiber. *Id.* At the time of the invention, there was a need to

² The inner primary coating is sometimes referred to as the primary coating; the outer primary coating is sometimes referred to as the secondary coating. A1194-95 ¶ 14 and Figure.

provide coatings that could be stripped easily and cleanly from their optical glass fibers. A4302 ¶ 29. The need for strippability had to be balanced, however, against other priorities, such as the durability and stability of the coating compositions under the conditions to which they would be exposed. A4303 ¶ 30. Among the conditions coated optical fibers must endure is immersion in water for extended periods of time. *Id.*

The '189 patent provides new metrics for evaluating inner primary coatings for ease of stripping, including fiber pull-out friction, and teaches various components and chemical structures to optimize those metrics to improve stripping performance. *See* A4307-08 ¶¶33-44 (summarizing cited passages of the '189 patent). The '189 patent also teaches further improving stripping performance by optimizing the relative thermal expansion characteristics of inner and outer coatings. *See* A4308-09 ¶¶ 35-36 (summarizing cited passages of the '189 patent). The '189 patent further teaches improving stripping performance while preserving the adhesion of the coating to the glass fiber, even where the fiber is submerged in water or subjected to other field conditions. *See* A4308 ¶ 34 (summarizing cited passages of the '189 patent).

If “the adhesive force between the inner primary coating and the surface of the optical glass fiber” is broken, the inner primary coating can “delaminate . . . from the surface of the optical glass fiber.” A83 at 8:61-64. Under normal operating conditions, “[d]elamination of the inner primary coating from the optical glass fiber” is undesirable because it “can lead to degraded strength of the optical glass fiber as well as signal transmission attenuation disadvantages.” A80 at 2:51-54.

The '189 patent describes different causes of delamination of prior art coatings. For example, “undesirable delamination” may occur “in the presence of moisture.” A80 at 2:49-50. And a prior art coating that “easily peeled from the surface of the optical glass fibers by finger pressure” is described as having “insufficient adhesion . . . to prevent delamination during most uses.” A81 at 3:47-48, 51-54.

Claim 59 is exemplary with respect to the claim limitations at issue in this appeal. Claim 59 reads as follows, with relevant claim language indicated by emphasis:

59. A system for coating an optical glass fiber comprising a radiation-curable inner primary coating composition and a radiation-curable outer primary coating composition wherein:

said inner primary coating composition comprises an oligomer having at least one functional group capable of polymerizing under the influence of radiation, said inner primary coating composition after radiation cure having the combination of properties of:

- (a) a fiber pull-out friction of less than 40 g/mm at stripping temperature;
- (b) a crack propagation of greater than 0.7 mm at stripping temperature;
- (c) a glass transition temperature of below -20° C.; and
- (d) **sufficient adhesion to said glass fiber to prevent delamination in the presence of moisture and during handling;** and

said outer primary coating composition comprises an oligomer having at least one functional group capable of polymerizing under the influence of radiation, said outer primary coating composition after radiation cure having the combination of properties of:

- (e) a glass transition temperature of above 40° C.; and
- (f) **a modulus of elasticity of greater than 25 MPa at stripping temperature;**

and wherein the ratio of the change in length of said inner primary coating composition, after radiation cure, to the change in length of said outer primary coating composition, after radiation cure, is less than 2 when said cured compositions are heated from 25° C. to stripping temperature.

A119 at 79:59-80:21 (emphasis added).

Claim 59 is exemplary with regard to the “change in length when heated” and “modulus of elasticity” limitations (also referred to herein as “change in length” and “modulus” limitations). Claims 53-66 each recite or incorporate by dependency both “modulus of elasticity”³ and “change in length when heated” limitations.

Claim 59 is also exemplary with regard to the limitation “sufficient adhesion to said glass fiber to prevent delamination in the presence of moisture and during handling,” which the Board referred to as the “claimed adhesion property.” A8. Claims 53-55 and 59-61 each recite this limitation.

³ There are differences between the modulus limitations recited that are not relevant to the issues in this appeal.

2. Claimed Properties at Issue

Corning asserted in its petition that claims 53-66 were unpatentable based in relevant part on inner coatings Szum Example 5B and Shustack Example I and outer coating Shustack Example X. A225-31; A233-35; A251-52. In support of its petition, Corning presented two declarations from Corning employees. In the first declaration, Ms. Inna Kouzmina testified about allegedly preparing and testing various coatings including Szum Example 5B and Shustack Examples I and X. *See generally* A1554-86. The second declaration, from Corning employee Dr. Michael Winningham, contained testimony that relied on the testing results describe in Ms. Kouzmina's declaration to reach conclusions on the ultimate issues of anticipation and obviousness. A1184; A1217-18 ¶¶ 66-68; A1247-56 ¶¶ 117-131; A1350-56 ¶¶ 141-156. Corning provided no underlying facts or data to support the tests described and relied upon by these witnesses.

The facts relevant to individual issues in this appeal are set forth separately by issue below.

A. Change in Length When Heated

Corning provided limited testimony by Ms. Kouzmina regarding change in length when heated results, A1583 ¶¶ 60-61, which were obtained by a method described as follows: “Change in length of the sample was calculated by comparing the length between two points on the sample when the sample was at two different temperatures.”⁴ A1582 ¶ 59.

The “length” at issue was a distance (measured in pixels) between two pixels on a digital microscope image. A2000 at 125:15-25; A4351 ¶ 117. The purportedly measured changes were on the order of a 20-pixel change for a 2000-pixel length. *See* A4351 ¶¶ 117 (excerpting [Ex. 2050] A4788). Ms. Kouzmina could not say how the points were selected and tracked; she testified:

Q. So do you know how the precise spots were chosen and how they were tracked?

...

⁴ The evidence also included a description of the equipment used, the sample preparation, and the temperatures at which images were captured, A1581-82 ¶¶ 56-58, but no additional details regarding the measurement method. Corning also submitted a reply declaration from Dr. Jiann-Wen “Woody” Ju, which DSM moved to exclude as improper reply evidence. A770-72. The Board dismissed DSM’s motion to exclude as moot because it ruled for DSM on this issue. A51.

A. I don't know exactly how the precise paths were chosen. It was Mr. Sanford's⁵ discretion, and tracked just visually following the selected spot in the microscope and then recording its position.

A1999 at 124:6-12; *see also* A4547-61 ¶¶ 110-11. Neither Ms. Kouzmina nor Corning's reply witness actually witnessed the measurements that produced the results on which Corning relied. *See* A1999 at 124:6-12; A1761-62 ¶¶ 80-81. *Accord* A40.

DSM's expert, Dr. Carl Taylor, testified that this method, essentially "eye-balling specific pixels from a micrograph," is susceptible to operator error, and the error rate is unacceptably large given the degree of change being measured. A4348-49 ¶ 111; A4351-54 ¶¶ 118-23.

The Board found that "Ms. Kouzmina does not explain what points were selected on each sample for each length measurement, how those points were selected, or how the points were tracked between images at different temperatures, in order to be certain that the same points on the sample were measured." A38-40. Moreover, consideration of the full record "underscore[d] the gaps in Corning's proofs." A41.

⁵ Mr. Sanford, a Corning employee, was the technician who performed the purported measurements. *E.g.*, A1997 at 116:9-16.

As a result of this failure to “provide a clear explanation of how the change-in-length measurements were made,” the Board found “Corning’s evidence concerning the change-in-length measurement to be not credible.” A42-43. For at least this reason, the Board found that Corning failed to prove unpatentability of claims 53-66. *See* A46-47 (claims 53, 54, 56, 57, 59, 60, 62, 63, and 65), A47 (claims 53-58, 65, and 66); A47-49 (claims 59-64); A49 (claims 55, 58, 61, and 64).

B. Modulus of Elasticity

In support of its contention that Example X of Shustack inherently possessed a modulus of elasticity within the claimed ranges, Corning purportedly made and tested Example X using an oligomer sold under the trade name EBECRYL® 284. *See* A1221 ¶ 74, n.5; A1564-065 ¶¶ 15-16, Table 4; A1580-81 ¶¶ 52-55, Table E.

Shustack does not disclose EBECRYL® 284 or any other examples of oligomers for use in Example X. *E.g.*, A1221 ¶ 74, n.5. Instead, Shustack discloses that Example X includes 60.0 parts by weight of an “aliphatic urethane acrylate oligomer with polyester backbone (I) (used as a mixture containing 12% hexanediol acrylate).” A969 at 30:32-36. The class of oligomers meeting this description is “almost infinite” and

includes oligomers that would result in compositions with modulus values outside the claimed ranges. A4506 ¶ 65; A4509-10 ¶¶ 73-74.

These facts were not disputed before the Board. Instead, Corning relied on the proposition that EBECRYL® 284 was within the class of oligomers disclosed by Shustack for use in making Example X. *See* Tr. of Hr'g, IPR2013-00048, Paper No. 87, at 15:12-19 (Feb. 11, 2014) [corresponding to A1140 in Joint App'x of Case No. 2015-1069 in this Court] ⁶ (emphasizing deposition testimony of DSM expert, Dr. Christopher Bowman, that EBECRYL® 284 was not unacceptable); A672-73 (arguing that EBECRYL® 284 was an “appropriate selection”).

The Board found that Corning failed to prove that Shustack inherently discloses an outer coating that has the claimed modulus of elasticity because

Corning has not shown that either (a) one of ordinary skill in the art would have, at once, envisaged EBECRYL® 284 oligomer from the disclosure in Shustack, or (b) every oligomer that meets the requirements specified in Shustack Example X would, if used to make that example,

⁶ The parties referred to the arguments relating to IPR2013-00045 and IPR2013-00048 during the consolidated hearing before the Board. A930 at ll. 28-32; A931 at ll. 22-24.

result in a coating with the required modulus of elasticity.

A32. This provided an additional reason for the Board's finding that Corning failed to prove unpatentability of claims 53-66. *See* A46-47 (claims 53, 54, 56, 57, 59, 60, 62, 63, and 65), A47 (claims 53-58, 65, and 66); A47-49 (claims 59-64); A49 (claims 55, 58, 61, and 64).

C. The Claimed Adhesion Property

Claims 53-55 and 59-61 recite an inner coating composition that, upon cure, has “sufficient adhesion to said glass fiber to prevent delamination in the presence of moisture and during handling,” *i.e.*, the claimed adhesion property. A118 at 77:28-78:45; A119-20 at 79:59-81:8. The claimed adhesion property recites two causes of undesirable delamination that must be resisted—the “presence of moisture” and “handling.” *E.g.*, A113 at 68:50-52. These correspond to two causes of delamination that are described as problems faced by prior art coatings. *See* A80 at 2:47-50 (“[A]ny reduction in the adhesion between the inner primary coating and the optical glass fiber increases the possibility of such undesirable delamination, especially in the presence of moisture.”); A81 at 3:47-48, 51-54 (explaining that a coating that can be “easily

peeled” from glass by “finger pressure” has “insufficient adhesion . . . to prevent delamination during most uses”).

Claims 56-58 and 62-64, on the other hand, recite certain values of “adhesion to glass . . . when conditioned at 95% relative humidity.” *E.g.*, A118-119 at 78:45-79:58; A120 at 81:9-82:39. Corning relied on testimony that it performed a test identified in the ’189 as “wet adhesion . . . measured at . . . 95% relative humidity (RH)” to show both the alleged presence of the 95% RH adhesion to glass of claims 56-58 and 62-64 and the claimed adhesion property of claims 53-55 and 59-61. A226 at ll. 12-19; A234 at ll. 6-13; A1578-79 ¶¶ 48-51. Experts for both parties referred to this kind of testing as a “peel test.” A3939 at 57:19-58:5, 58:18-59:12; A4320 ¶ 61; *see also* A22 (noting Dr. Winningham’s use of the phrase “peel test” when referring to the “wet adhesion test”).

The ’189 patent expressly describes testing for “resistance to delamination” by means of a “Water Soak Delamination Test.” A93 at 27:18-21. *Accord* A18-19. The ’189 patent also describes methods for measuring adhesion values after conditioning at 50% RH and at 95% RH, *see generally* A93-94 at 28:50-29:18, which are conducted “[i]n

addition” to the water soak delamination test. A93 at 28:53-56. *Accord* A19-20.

Corning’s and DSM’s experts both explained how water soak delamination testing evaluates a coating’s resistance to delamination from hydrodynamic forces (*i.e.*, hydrolysis). Dr. Winningham testified that “one could perform a water delamination test if one was concerned about the ability of a coating to delaminate from a substrate when the film is exposed to water.” A4081 at 460:8-11. And Dr. Taylor explained that “the results of a 60°C water soak delamination test are largely determined by the resistance of the adhesive bonds to hydrolysis.” A4321-22 ¶ 64. *Accord* A22-23 (discussing testimony from Dr. Taylor and Dr. Winningham).

Unlike the water soak delamination test, which evaluates resistance to delamination due to hydrolysis, a peel test measures the resistance of the coating-glass bonds to a mechanical force applied to the coating. A4324 ¶ 66; *see also* A4081 at 459:3-18 (explaining that a peel test differs from a water delamination test because the peel test involves “applying . . . a mechanical force to a film and pulling the film off a substrate”). *Accord* A22.

At deposition, Dr. Winningham testified about the differences between a peel test and a water delamination test:

Q. If one was concerned about the ability of a coating to delaminate from a substrate when exposed to water, would performing a peel test not give sufficient information to satisfy the interested person?

A. **I think those tests measure — are looking at different things or measuring different things**, so I'm not sure if — I can't say categorically that a peel test is going to tell you what's going to happen in a water delamination test. **Different tests.**

A4081 at 460:12-21 (emphasis added). *Accord* A22-23.

The Board found that “Corning fail[ed] to show by a preponderance of evidence that either Shustack Example I or Szum '928 Example 5B inherently discloses the claimed adhesion property.” A25. The Board had two independent reasons for this finding. A24.

First, the Board decided that “the inventors used [the term ‘moisture’] in its ordinary sense to refer to liquid water.” A9. The Board therefore considered it “dispositive” that Corning did not show that the Szum and Shustack coatings exhibit “sufficient adhesion to

prevent delamination from glass in the presence of liquid water.” A16-17; *see* A20-21.

Second, the Board found that Corning had not shown “that the results of a 95% relative humidity wet adhesion test correspond to an ability to withstand the hydrodynamic forces that effect delamination.” A21. The Board based this decision, in part, on a finding “that the wet adhesion test assesses the mechanical force required to peel a cured coating away from a glass substrate, after conditioning the coating at 95% relative humidity.” A18. The Board also found Corning’s arguments and evidence regarding the relevance of its wet adhesion test results “unsupported and, therefore, unpersuasive.” A21; *see* A23 (“That argument also is unpersuasive because it is unsupported by convincing, objective evidence.”).

Accordingly, the Board’s findings regarding the claimed adhesion property provided a third basis for determining that Corning failed to prove unpatentability of claims 53-55 and 59-61. A46-50.

SUMMARY OF ARGUMENT

The Board’s determination that Corning failed to prove the unpatentability of claims 53-66 should be affirmed. First, substantial

evidence supports the Board's finding that Corning failed to show the "eye-balling" method it used for purportedly measuring change in length when heated was sufficiently rigorous and reliable. The Board therefore found Corning's evidence of the change in length limitation required by claims 53-66 to be not credible, and that credibility determination is entitled to considerable deference by this Court.

Second, substantial evidence supports the Board's finding that Corning did not show by a preponderance of the evidence that Example X has the modulus of elasticity values required by claims 53-66. Shustack discloses a broad category of oligomers that can be used to make Example X, and does not expressly or inherently disclose the commercial oligomer that Corning used for its own testing purposes. The genus of oligomers of Shustack includes oligomers that would result in compositions having modulus values outside the claimed ranges.

Third, substantial evidence supports the Board's finding that Corning failed to show prior art coatings have the claimed adhesion property recited in claims 53-55 and 59-61. Specifically, the Board found, independent of its construction of "moisture," that Corning failed

to prove any correlation between the wet (95% RH) adhesion test and the ability to “prevent delamination” caused by hydrodynamic forces (*i.e.*, “in the presence of moisture”). This finding is supported by overwhelming evidence, including testimony from both parties’ expert witnesses, and Corning makes no effort to show otherwise. Moreover, while this Court need not address the Board’s construction of “moisture,” the intrinsic and extrinsic evidence support the Board’s construction that “moisture” refers to “liquid water.”

STANDARD OF REVIEW

Anticipation is a question of fact. *Activevideo Networks, Inc. v. Verizon Commc’ns, Inc.*, 694 F.3d 1312, 1327 (Fed. Cir. 2012). The ultimate issue of obviousness is a question of law reviewed *de novo*, but it is predicated on underlying questions of fact, *In re Gartside*, 203 F.3d 1305, 1316 (Fed. Cir. 2000), including “the scope and content of the prior art.” *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17 (1966). Whether a claim element is disclosed by a reference is a question of fact. *See Med. Instrumentation and Diagnostics Corp. v. Elekta AB*, 344 F.3d 1205, 1221 (Fed. Cir. 2003) (“The question of what

a reference teaches and whether it describes every element of a claim is a question for the finder of fact.”).

Factual findings by the Board should be upheld as long as they are supported by substantial evidence. *In re Gartside*, 203 F.3d at 1313-14. “Substantial evidence is something less than the weight of the evidence but more than a mere scintilla of evidence,” *In re Kotzab*, 217 F.3d 1365, 1369 (Fed. Cir. 2000), and “means such relevant evidence as a reasonable mind might accept as adequate to support a conclusion.” *Consol. Edison Co. v. Nat’l Labor Relations Bd.*, 305 U.S. 197, 229 (1938).

Claim construction determinations by the Board are reviewed applying the same “broadest reasonable interpretation” standard the Board applies. *In re Abbott Diabetes Care Inc.*, 696 F.3d 1142, 1148 (Fed. Cir. 2012). While the ultimate construction of a claim is reviewed *de novo*, underlying factual determinations concerning extrinsic evidence are reviewed for substantial evidence.⁷ *In re Cuozzo Speed*

⁷ The arguments in this brief and Corning’s refute Corning’s assertion (see Appellant’s Br. at 23 n.1) that the Board made no subsidiary fact findings based on extrinsic evidence that would bear on Corning’s claim construction arguments. The Board made several factual findings regarding the relevance and reliability of the tests Corning relied upon.

Techs., LLC, No. 2014-1301, 2015 U.S. App. LEXIS 1699, at *24 (Fed. Cir. Feb. 4, 2015) (citing *Teva Pharm. USA, Inc. v. Sandoz, Inc. (Teva II)*, 574 U.S. ___, 135 S. Ct. 831, 841 (2015)).

“It is within the discretion of the trier of fact to give each item of evidence such weight as it feels appropriate,” *Velander v. Garner*, 348 F.3d 1359, 1371 (Fed. Cir. 2003), and this Court defers to the Board’s discretion in crediting or discrediting evidence “unless no reasonable trier of fact could have done so.” *Yorkey v. Diab*, 601 F.3d 1279, 1284 (Fed. Cir. 2010).

ARGUMENT

I. Substantial Evidence Supports the Board’s Conclusion That Corning Failed to Prove That Its “Change in Length” Test Method Was Reliable.

The Board properly found “Corning’s evidence concerning the change-in-length measurement to be not credible.” A42. Ms. Kouzmina’s declaration failed to “explain what points were selected on each sample for each length measurement, how those points were selected, or how the points were tracked between images at different temperatures, in order to be certain that the same points on the sample

To the extent the Board’s decision that Corning’s test evidence was insufficient could be characterized as claim construction, it is necessarily based on those factual findings.

were measured.” A40-41. The Board’s consideration of the record “developed and cited during the trial” only “underscores the gaps in Corning’s proofs.” A41.

A. The Board’s Decision Not to Credit Corning’s Evidence Is Supported by the Record and Entitled to Deference.

The Board considered the evidence of record and found Corning’s testimony reporting change in length measurement results were not credible. A42. The Board was well within its discretion in giving that evidence “little or no weight.” A40; see *In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1368 (Fed. Cir. 2004) (“The Board has broad discretion as to the weight to give to declarations offered in the course of prosecution.”) (citing *Velandier*, 348 F.3d at 1371). In this instance, the failure to include “underlying facts or data,” A40 (citing 37 C.F.R. § 42.65(a)), more than justifies the Board’s decision to discount Corning’s evidence. *In re Am. Acad.*, 367 F.3d at 1368 (“[T]he Board is entitled to weigh the declarations and conclude that the lack of factual corroboration warrants discounting the opinions expressed in the declarations.”) (citing *Velandier*, 348 F.3d at 1371).

A review of the record confirms the Board's conclusion that the evidence "does not provide a clear explanation of how the change-in-length measurements were made." A42. As the Board stated, Paragraph 59 of Ms. Kouzmina's Declaration is the only evidence filed with Corning's Petition regarding how the change in length was calculated. A40. The entirety of Paragraph 59 reads, "Change in length of the sample was calculated by comparing the length between two points on the sample when the sample was at two different temperatures." A1582 ¶ 59.

During cross-examination, Ms. Kouzmina admitted she did not know "how the precise spots were chosen and tracked," except that it was left to the operator's discretion to "just visually follow the selected spot in the microscope." A1999 at 124:6-12. She also admitted that she did not know which points in each image were used to determine change in length, *id.* at 123:18-21, or even which of the three images produced in discovery corresponded to which coatings. A1997 at 114:6-18, 115:17-25.

Dr. Taylor explained how the difficulty of identifying a specific pixel (as Corning claimed to do) from any feature large enough to be

distinct would affect the error rate in Corning's change in length measurements. A4353-54 ¶¶ 121-22; *see* A4351-52 ¶ 119 (“[V]isible features, which can be identified, . . . are several pixels wide, much too wide to obtain precision measurements of a change in distance when the change is only 20 pixels.”). He also testified that Corning's “eyeballing” method introduced an unacceptable risk of error, including operator error. A4348-49 ¶ 111.

The Board even considered evidence submitted with Corning's Reply, which it was not required to do. *See* 35 U.S.C. § 312(a)(3) (requiring a petition to include “the evidence that supports the grounds for the challenge to each claim”). But even then, “[q]uestions remain[ed] . . . about precisely what Mr. Sanford [the Corning employee who conducted the tests] did.” A42.

Even now, Corning does not identify any evidence in the record that contradicts the Board's conclusion. Corning cites to evidence regarding the use of talc particles to identify a point on an image. *See* Appellant's Br. at 28, 31-32. The Board noted, however, that Corning's witnesses did “not explain with any precision how the talc . . . is used for this purpose.” A41-42. Moreover, this evidence does not address the

fact that the features on the images were several pixels wide. A4351-52 ¶ 119. Corning never presented evidence explaining how the Corning employee responsible for the test “could be sure that a **pixel** being identified could be found with the assistance of a talc particle.” A42 (emphasis added).

Corning also cites testimony from its Reply expert, Dr. Ju, that “Mr. Sanford ‘illustrated how he could identify the marking or the exact location that he’s measuring.’” Appellant’s Br. at 32 (quoting A4979 at 17:4-9). But Corning cannot point to evidence of what Mr. Sanford purportedly illustrated because it was never submitted to the Board. As the Board noted in its Decision on Corning’s Request for Rehearing, the Board “require[s] more than a witness’s assurances that his opinions are supported by facts. [It] require[s] the facts themselves.” A63. By omitting such facts, Corning rendered “the testimony of little probative value in a validity determination.” *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 294 (Fed. Cir. 1985).

Moreover, Dr. Ju received an after-the-fact demonstration of a “procedure for the temperature-induced length changes of optical fiber” by videoconference roughly a year after Corning filed its petition. A4979

at 17:1-9; *see* A4978 at 13:20-14:4, 16:9-10, 21-25 (testifying about the timing and content of the videoconference). The procedure demonstrated for Dr. Ju does not appear to be the one Corning relies upon for its petition, which purportedly used “squares” of “polymer film,” not “optical fiber.” *Compare* A1582 ¶ 58 *with* A4979 at 17:4; *see also* A41 (“Corning . . . cites no credible evidence to show that Ms. Kouzmina’s and Dr. Ju’s testimony accurately portray the procedure actually used by Mr. Sanford.”).

In addition, Corning cites to Dr. Ju’s assurances about the quality of Corning’s method. Appellant’s Br. at 31. Dr. Ju offered no evidence or calculations to support these assurances. For example, Dr. Ju claimed that Mr. Sanford could visually achieve a 2-5% error rate, A1765-66 ¶ 89, which corresponds to an error between 0.4 pixels and 1 pixel for a 20-pixel change. In other words, Dr. Ju claimed Mr. Sanford could precisely measure, by eye-balling, differences of less than a pixel, even though a pixel is the smallest unit of a digital image, like the ones Corning used. *See, e.g.,* A4351 ¶ 117 (explaining that pixels represented “points”). Even setting aside the fact that Dr. Ju’s

testimony was improper reply evidence,⁸ the Board acted well within its discretion by not crediting Dr. Ju's unsupported, conclusory assertions. *See Velandier*, 348 F.3d at 1371.

B. The Board's Decision Was Based on Sound Legal Reasoning, and Corning Fails to Show Otherwise.

The Board's decision not to credit Corning's evidence was based on its sound judgment and a close review of the evidence, not, as Corning argues, "flawed analysis and erroneous reasoning." Appellant's Br. at 27.

The Board did not, as Corning implies, *see* Appellant's Br. at 28-29, fail to understand how to use the Pythagorean Theorem to calculate a line between two X,Y coordinate points. The "calculation process" the Board was "unable to understand," A60, was the inadequately described process in Paragraph 59 of Ms. Kouzmina's declaration. *See* A1582 ¶ 59 ("Change in length of the sample was calculated." (emphasis added)). That testimony did not explain "what points were selected . . . , how

⁸ Corning's assertion that Dr. Ju's reply declaration is, "effectively, un rebutted," Appellant's Br. at 26, only underscores the unfairness of Corning's untimely submission. Moreover, while DSM does not concede that Dr. Ju's testimony is "uncontradicted" by other evidence, the Board "was not required to accept his expert testimony, even if it was." *U.S. Philips Corp. v. Windemere Corp.*, 861 F.2d 695, 704 (Fed. Cir. 1988).

those points were selected, or how the points were tracked between images at different temperatures, in order to be certain that the same points on the sample were measured.” A40.

Based on Corning’s failure to provide “an explanation of the experimental methods used to generate [its] results,” A40, the Board correctly found that Corning failed to prove the rigor and reliability of those methods. *See* 40. Corning complains that the ’189 patent does not specify a procedure to “rigorously” follow, Appellant’s Br. at 26, 29, but that does not excuse Corning’s failure to present evidence demonstrating that it used a reliable and scientifically rigorous test method when such methods were known in the art. *See Koito Mfg. Co. v. Turn-Key-Tech, LLC*, 381 F.3d 1142, 1156 (Fed. Cir. 2004) (“[A] patent applicant does not need to include in the specification that which is already known to and available to one of ordinary skill in the art.”); A4349-50 ¶¶ 112-14 (describing known reliable methods).

Corning’s other arguments regarding the sufficiency of Corning’s description, *see id.* at 27-28, the Board’s “critici[sm] [of] Ms. Kouzmina’s knowledge,” *id.* at 29-30, and the Board’s “discount[ing] Dr. Ju’s testimony,” *id.* at 30-32, are merely invitations to reassess the

credibility of the evidence on appeal.⁹ This is improper and unnecessary where, as here, the Board's credibility determination is supported by the record. *See Yorkey*, 601 F.3d at 1285 (affirming the Board's decision where "the Board's evaluation of credibility . . . is supported by substantial evidence"). Moreover, Corning cannot rely on Dr. Ju's improper reply testimony to bolster its inadequate petition evidence on the change in length limitation.¹⁰ *See* 35 U.S.C. § 312(a)(3) (requiring that a petition include the evidence relied on for the grounds asserted).

As discussed above, none of the evidence Corning cites (or any other evidence in the record) explains "what points were selected on each sample for each length measurement, how those points were selected, [and] how the points were tracked between images at different

⁹ Corning's argument that the Board "*Sua Sponte*" addressed other issues, Appellant's Br. at 32-33, is unavailing. The supposed issues addressed were provided as an "example" of questions left by the gaps in Corning's evidence, A64, and Corning attempted to address those questions for the first time in its request for rehearing. *Compare* A64-65 *with* Appellant's Br. at 32-33 (showing that the evidence Corning relies on in this appeal had not been cited during the *inter partes* review proceeding).

¹⁰ The Board dismissed DSM's motion to exclude Dr. Ju's "change in length" testimony on these grounds because it "consider[ed] that evidence on its merits and decide[d] the issue in DSM's favor." A51.

temperatures, in order to be certain that the same points on the sample were measured,” each of which the Board identified as missing. A40.

C. The Board Did Not Engage in Claim Construction Regarding How to Determine “Change in Length,” Nor Did It Need to Do So.

Corning’s attempt to frame this issue as one of claim construction has no support in the record. The claim recites a physical property—thermal expansion—that can be measured by more than one method. A4349-50 ¶¶ 112-14. The Board’s finding was that Corning’s evidence did not represent a credible measurement of that property. *See* A42 (“We find Corning’s evidence concerning the change-in-length measurement to be not credible.”). The Board did not decide, as a matter of claim interpretation, whether any given kind of test was within the scope of the claims. For this reason alone, Corning fails to show that the Board did not apply the broadest reasonable interpretation.

Corning also appears to argue that the quantum of proof to which it should be held ought to be decided as claim construction based on the amount of detail in the ’189 patent’s specification. *See* Appellant’s Br. at 24 (“If . . . a specific level of detail regarding the test methodology

was required by the '189 Patent, [it] should have been specified in the patent.”). This is contrary to law because claim terms are construed to determine their meaning, not to expressly define what evidence will be necessary to show the limitations are satisfied. *See Playtex Prods., Inc. v. Procter & Gamble Co.*, 400 F.3d 901, 907 (Fed. Cir. 2005) (“The need to make a difficult factual determination does not allow the court to surrender material that the patentee clearly and rightfully claimed.”).

Moreover, Corning offers no authority for conflating its burden of proof with a patentee’s obligation of disclosure under 35 U.S.C. § 112. “[The '189] patent need not disclose what is well known in the art,” *In re Wands*, 858 F.2d 731, 735 (Fed. Cir. 1988), such as reliable measurement methods for the change in length limitation. *See* A4349-50 ¶¶ 112-14 (describing known reliable methods). Corning, on the other hand, must disclose the “underlying facts or data” relied upon by its expert witnesses, 37 C.F.R. § 42.65(a), which it did not do. *See* A40-41.

D. The Board’s Decision to Institute Is Consistent with Its Final Written Decision.

Corning cites no authority to support its argument that the Board’s final written decision is inconsistent with its decision

instituting trial on Corning's petition evidence. Appellant's Br. at 33-34. As the Board correctly stated in its decision denying Corning's rehearing request, this argument fails both because the standard for institution differs from the standard during trial, A57-58, and because "consideration of evidence developed and cited during trial highlighted gaps in Corning's petition evidence." A58.

Substantial evidence supports the Board's finding that Corning's evidence was not credible because Corning failed to adequately explain its test method. Even now, Corning fails to identify any record evidence that explains the details that the Board determined were absent and necessary. Instead, Corning asks this Court to reweigh the evidence and alleges errors in the Board's reasoning that are unsupported by the record. Accordingly, the Board's judgment confirming the patentability of claims 53-66 should be affirmed.

II. Substantial Evidence Supports the Board's Finding That Corning Failed to Show Shustack Inherently Discloses the Claimed "Modulus of Elasticity" Limitations.

The Board correctly found that Corning failed "to show that Example[] X . . ., *as disclosed in Shustack*, inherently disclose[s]" the claimed modulus property. A31. Shustack discloses a composition

identified as Example X, on which Corning relies for its contention that the claimed modulus of elasticity is inherently disclosed by Shustack.¹¹ A969 at 30:25-42; *see* Appellant’s Br. at 34-40. All of Corning’s evidence regarding properties of Example X relied on a formulation Corning made using EBECRYL® 284 oligomer as a component. A1221 ¶ 74, n.5; A1564-065 ¶¶ 15-16, Table 4; A1580-81 ¶¶ 52-55, Table E.

“Inherent anticipation requires that the missing descriptive material is ‘necessarily present,’ not merely probably or possibly present, in the prior art.” *Trintec Indus., Inc. v. Top-U.S.A. Corp.*, 295 F.3d 1292, 1295 (Fed. Cir. 2002) (quoting *In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999)). The Board correctly concluded that Corning failed to show either that a person of ordinary skill in the art “would have, at once, envisaged EBECRYL® 284 oligomer” from Shustack’s generic description of an oligomer for use in Example X or that every oligomer within that generic description would have resulted in “a coating with the required modulus of elasticity.” A32.

¹¹ During the proceedings before the Board, Corning also presented evidence regarding Example XI from Shustack, which the Board found insufficient for the same reasons as Example X. *See generally* A29-33. Corning does not appeal the decision regarding Example XI. *See* Appellant’s Br. at 34-40.

A. EBECRYL® 284 Would Not Be, at Once, Envisaged from the “Almost Infinite” Genus Disclosed by Shustack.

The record evidence shows that Shustack discloses a broad, “almost infinite” class of oligomers. Moreover, there is no evidence a person of ordinary skill in the art would have understood the disclosed genus as specifically identifying EBECRYL® 284.

1. Shustack Discloses a Broad Class of Oligomers.

Shustack discloses that Example X contains 60.00% by weight of an “aliphatic urethane acrylate oligomer with polyester backbone (I) (used as a mixture containing 12% hexanediol acrylate).” A969 at 30:32-36; *see id.* at 30:25-42 (providing “Parts by Weight” for “Ingredients” totaling 100.00 parts). It is undisputed that Shustack does not expressly disclose any individual oligomers fitting this description, A1221 n.5, and omits significant structural details of the oligomer, including molecular weight, number of acrylate functionalities, the kind of polyester repeat units, and whether the oligomer should be branched. A4506 ¶ 65 (citing 963-64 at 18:35-19:41, A969-70 at 29:30-31:30).

Relying on these undisputed facts, Dr. Bowman testified that Shustack's omission of details renders the class of oligomers that fit Shustack's description "almost infinite." A4506 ¶ 65. The Board reasonably credited that testimony, which supports the Board's conclusion that Shustack discloses a genus of oligomers for use in Example X. A32.

The Board's finding that Shustack discloses a genus of oligomers for use in Example X is therefore supported by substantial evidence.

2. Shustack Does Not Disclose EBECRYL® 284.

"A prior art reference that discloses a genus still does not inherently disclose all species within that broad category." *Metabolite Labs., Inc. v. Lab. Corp. of Am. Holdings*, 370 F.3d 1354, 1367 (Fed. Cir. 2004) (citations omitted); *see Atofina v. Great Lakes Chem. Corp.*, 441 F.3d 991, 999 (Fed. Cir. 2006) ("It is well established that the disclosure of a genus in the prior art is not necessarily a disclosure of every species that is a member of that genus.").

As the Board noted, a disclosed genus may also disclose the "constituent species if one of ordinary skill in the art could 'at once envisage' them from the generic disclosure." A32 (citing *In re Petering*,

301 F.2d 676, 681 (C.C.P.A. 1962)). The Board correctly found that Corning failed to show this. A32-33. Indeed, there is no evidence of record that one of ordinary skill in the art could at once envisage EBECRYL® 284 from the disclosure of Shustack.

Instead, Corning argued to the Board that EBECRYL® 284 was “suitable” because it was within the class of oligomers disclosed by Shustack. *See* A32 (citing A1221 n.5; A2591 at 433:13-24). But the fact that Shustack discloses a “broad category” of oligomers that may include EBECRYL® 284 does not mean that Shustack “inherently disclose[s]” EBECRYL® 284 as a “species within that broad category.” *Metabolite Labs.*, 370 F.3d at 1367. *Accord* A32.

Corning relies on Dr. Bowman’s testimony that, “off the top of [his] head,” he could not, at the time of his deposition, “identify any [oligomers] that [he] know[s] that are on the market besides Ebecryl 284 that would fit the description” of the oligomer used in Shustack Example X. Appellant’s Br. at 39 (citing A2591 at 433:13-24). As the Board correctly stated, evidence that Dr. Bowman is not aware of such oligomers “does not address whether any other suitable oligomers *exist* or have been disclosed by Shustack,” A65 (quoting Decision [A32]), let

alone whether they existed at the time of the invention. This is true even if “suitable oligomers” include only commercially available oligomers, as Corning now asserts it should.

The testimony of Dr. Dotsevi Sogah that Corning cites, *see* Appellant’s Br. at 39, is equally unsupportive. Dr. Sogah testified on reply that “Corning chose Ebecryl 284 as a commercially available oligomer that meets [Shustack’s] description.” A2517-18 ¶ 87. He did not testify that it was, at any time, the only such oligomer—commercially available or otherwise. *See id.* ¶¶ 86-88. To the contrary, he testified at deposition that there were other oligomers meeting the description of Shustack and that he did not know and had not looked into whether they were commercially available. A4857 at 83:4-17.

Moreover, there is no record evidence to show that the use of the diluent disclosed in Shustack (12% hexanediol acrylate) was “very unique,” as Corning argues in support of its contention that Shustack specifically discloses EBECRYL® 284. Appellant’s Br. at 38. There is no evidence regarding whether other vendors made similar mixtures available or whether a person of ordinary skill in the art could make the mixture by adding hexanediol acrylate.

3. Corning's Argument Regarding "Commercial Availability" Is Unsupported, Untimely, and Unavailing.

Corning belatedly argues that Shustack requires a commercially available oligomer be used in Example X. Appellant's Br. at 35-36. This argument is not supported by the record, is untimely, and is ultimately unavailing to Corning's appeal.

Shustack merely states that the described oligomer, "as commercially available," had a lower modulus than an oligomer used in another example, A969 at 30:48-50, which is just as broadly defined. See A968 at 28:45-48. There is no record evidence to suggest that a person of ordinary skill in the art would have understood this ambiguous reference to limit the disclosure to a commercially available oligomer. To the contrary, the evidence of record shows that a person of ordinary skill in the art would find that "synthesizing [oligomers]," as opposed to purchasing them, "is a very reasonable approach to making materials and to using these materials." A2591 at 433:25-434:23.

Corning raised this argument for the first time in a request for rehearing. Compare A949 (arguing "the oligomer is described" in Shustack as "commercially available") with A673. Prior to the request

for rehearing, Corning argued that EBECRYL® 284 “may be the only commercially available oligomer that meets [Shustack’s] description,” *see* A673, but did not assert that commercial availability, itself, was **part** of the description. Accordingly, the argument is not timely raised. *See* 37 C.F.R. § 42.71 (“The request must specifically identify all matters the party believes the Board **misapprehended or overlooked**.” (emphasis added)).

In any event, Corning still fails to identify any evidence that EBECRYL® 284 was the only commercially available oligomer in the relevant time frame. As explained above, testimony that Dr. Bowman was not aware of commercially available oligomers is not evidence that they did not exist.

B. The Class of Oligomers Disclosed by Shustack Does Not Inherently Result in a Coating with the Claimed Modulus of Elasticity.

Substantial evidence also supports the Board’s finding that “Corning has not shown that the properties of a coating made with the EBECRYL® 284 oligomer is indicative of the properties that would result from making Shustack Example X . . . with another oligomer.” A45.

The Board credited the testimony of Dr. Bowman “that the unspecified details in Shustack’s oligomer description may have substantial effects on the material properties that a resulting coating would possess, including . . . modulus of elasticity.” A33 (citing A4506-11 ¶¶ 65-76). Corning’s witnesses confirmed this, testifying that molecular weight would “play a role” for “tensile properties, such as Young’s modulus,” A3854 at 731:12-24, and identifying “modulus of the coating” as a property that would be affected by molecular weight of an “oligomer . . . comprising 40 to 60 percent of the coating composition,” like the oligomer in Example X. A3952 at 109:13-110:6.

Dr. Bowman specifically testified there were many known oligomers that could have been used in formulating Example X that would have resulted in compositions outside the claimed ranges, A4509-10 ¶¶ 72-74, and Corning cites no evidence to the contrary. Shustack therefore cannot “unavoidably teach[] the property in question,” which is the “very essence of inherency.” *Agilent Techs., Inc. v. Affymetrix, Inc.*, 567 F.3d 1366, 1383 (Fed. Cir. 2009) (citing *In re Oelrich*, 666 F.2d 578, 581 (C.C.P.A. 1981)).

Because this and all the Board's findings regarding the modulus of elasticity limitations are supported by substantial evidence, the Board's judgment as to claims 53-66 should be affirmed.

III. Substantial Evidence Supports The Board's Finding That Corning Failed to Prove Szum and Shustack Inherently Disclose the Claimed Adhesion Property.

The Board correctly found Corning's evidence insufficient to show that either Szum or Shustack inherently discloses "sufficient adhesion . . . to prevent delamination in the presence of moisture and during handling," A25, which the Board referred to as the claimed adhesion property. A8. The Board identified "two independent reasons" supporting its decision. A24. First, the Board found Corning's evidence insufficient because 95% relative humidity is not "liquid water," as required by the Board's construction of the term "moisture." A20. Second, the Board found that Corning failed to prove its "wet (95% RH) adhesion" test (A93 at 28:50) measured resistance to delamination caused by the presence of moisture, under any construction. *See* A20. (finding Corning's evidence insufficient to show "an ability to withstand the hydrodynamic forces that effect delamination").

Because both of these findings are supported by substantial evidence and either one alone is sufficient to justify its ultimate finding, this Court may affirm the Board's decision based on either one. *See, e.g., In re Gartside*, 203 F.3d at 1322 (affirming decision of the Board where the Board's factual findings were supported by substantial evidence). The Board's finding that Corning's test did not assess resistance to "hydrodynamic forces" (*i.e.*, hydrolysis) is independent of its construction of the term "moisture," so this Court may affirm the Board's decision without the need to review the Board's claim construction. In addition, this Court may affirm the Board's decision because substantial evidence supports the Board's finding that Corning's test does not involve exposure to liquid water, as required by the correct construction of the term "moisture."

A. The Board's Decision Is Supported by Substantial Evidence Under Any Construction of "Moisture."

The Board correctly found that Corning's wet (95% RH) adhesion test results did not "correspond to an ability to withstand the hydrodynamic forces that effect delamination." A21. Corning argues incorrectly that the Board interpreted "delamination" as limited to delamination caused by moisture. The Board did not construe

“delamination” at all, *see generally* A8-9 (construing only the term “moisture”), and it properly limited its anticipation and obviousness analyses to “delamination in the presence of moisture” because DSM’s arguments focused on this limitation. *See, e.g.*, A518 (“The plain language of the claims requires that the glass adhesion be sufficiently high that delamination does not occur in the presence of moisture.”).

While Corning argues that the relevance of its testing should be decided as a matter of claim construction, *see* Appellant’s Br. at 42, this Court should not review it as such. *See Teva Pharm. USA, Inc. v. Sandoz, Inc. (Teva I)*, 723 F.3d 1363, 1373-74 (Fed. Cir. 2013), *vacated on other grounds by* 135 S. Ct. 831 (2015) (reviewing conclusions for clear error where appellant challenged district court’s use of aggregate variation as improper claim construction).

Indeed, the Board made express factual findings that Corning’s tests were not relevant based in large part on its consideration of expert testimony. A17, A20-24. Corning’s arguments about the relevance of its evidence show it is asking this Court to reweigh evidence the Board considered and found unpersuasive, which is something this Court does not do in reviewing administrative

actions. *In re NTP*, 654 F.3d 1279, 1292 (Fed. Cir. 2011). Instead, because the Board’s decision is supported by substantial evidence, this Court can and should affirm.

1. The Board’s Decision Correctly Focused on Delamination Caused by Hydrodynamic Forces.

The Board properly focused on whether Corning’s test evidence could show “an ability to withstand the hydrodynamic forces that effect delamination,” A21, because the only limitation that was in dispute was “sufficient adhesion . . . to prevent delamination in the presence of moisture.” *Cf. Multiform Desiccants, Inc. v. Medzam, Ltd.*, 133 F.3d 1473, 1481 (Fed. Cir. 1998) (finding no error in a district court’s decision not to address validity when its judgment of noninfringement resolved the dispute). DSM argued that Corning’s evidence was insufficient to show this limitation was met because the claims require, in relevant part, that “the glass adhesion be sufficiently high that delamination does not occur in the presence of moisture.” A518. The Board agreed. *See* A20 (finding Corning’s evidence insufficient). Because the dispute before the Board did not focus on whether the cited references disclose a coating that would delaminate during handling, the Board did not need to resolve that question. *Cf. Multiform Desiccants*, 133 F.3d at 1481.

Corning's argument that "the specification . . . makes clear that 'delamination' may occur in the . . . absence of 'moisture,'" Appellant's Br. at 56 (emphasis added), is therefore irrelevant because the claims recite a coating that does not delaminate in the "presence of moisture." *E.g.*, A113 at 68:50-52 (emphasis added).

The Board's decision does not assume that the water soak delamination test was the only test for assessing delamination under any circumstances. *See* Appellant's Br. at 55-56, 61. Instead, the Board found that the water soak delamination test was one method to "assess[] the ability of a cured coating to withstand the hydrodynamic forces that cause delamination," while the method Corning employed was not. A19; *see* A21. Based in part on the testimony of Corning's own expert that Corning's wet (95% RH) adhesion test measured a different property from the water soak delamination test, the Board found that the test Corning used did not assess resistance to delamination caused by hydrolysis or "hydrodynamic forces." A21; *see* A22 (citing A4081 at 460:12-21). Corning appears to concede that any delamination from humidity would be from hydrolysis. *See* Appellant's Br. at 52-53 (arguing that "moisture" should encompass high humidity because

“atmospheric moisture” may cause “hydrolysis”). But in a wet (95% RH) adhesion test, a mechanical force is used to pull the coating from the glass substrate. A22 (citing A4081 at 459:3-18). Any delamination that might occur during the test is not caused by the “presence of moisture.”¹²

Corning complains about this finding, but does not assert that it is unsupported by substantial evidence. *See* Appellant’s Br. at 60. Given extensive testimony from both Dr. Taylor and Dr. Winningham on how different adhesion tests evaluate resistance to different forces, the Board’s findings on the subject are entitled to deference and should not be disturbed.

Moreover, those findings are entirely consistent with the claim language. The claims recite “sufficient adhesion to said glass fiber to prevent delamination in the presence of moisture and during handling.”

¹² This is consistent with DSM’s position throughout the proceedings before the Board that the water soak delamination test was the proper test for evaluating delamination **due to hydrolytic forces**. *See* A517-18, A529-30 (arguing that the claim requires “at least” certain water soak delamination test results); Tr. of Hr’g, IPR2013-00045, Paper No. 89, at 26:4-27:8 (Feb. 11, 2014) [corresponding to A869-70 in Joint App’x of Case No. 2014-1730 in this Court] (arguing that the water soak delamination test was one of two required tests). Contrary to Corning’s argument, *see* Appellant’s Br. at 55, DSM’s argument in its Response and at the hearing were consistent.

E.g., A113 at 68:50-52 (emphasis added). By setting forth the “moisture” and “handling” conditions in separate phrases, the claims require that the adhesion of a coating prevent delamination “during handling,” regardless of whether moisture is present, and “in the presence of moisture,” without regard to handling. *Cf. Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005) (*en banc*) (“[T]he claims themselves provide substantial guidance as to the meaning of particular claim terms.”). The Board’s decision to focus on delamination caused by hydrodynamic forces was therefore both reasonable and entirely consistent with the claim language, and Corning’s arguments to the contrary are unavailing.

The Board’s findings are supported by substantial evidence. Substantial evidence shows that Corning’s 95% RH adhesion test assesses a mechanical force required to peel a coating from a glass substrate. Moreover, there is no evidence showing how the measured mechanical force might relate to the ability to resist delamination caused by “hydrodynamic forces.” Accordingly, the Board’s decision that Corning failed to meet its burden to show unpatentability by a preponderance of the evidence should be affirmed.

2. The Relevance of Corning's Test Evidence Is Part of the Board's Analysis of Anticipation and Obviousness, Not Claim Construction.

The Board found that Corning failed to prove by a preponderance of the evidence that the results of a wet (95% RH) adhesion test were probative of “delamination” in the context of the claimed adhesion property. *See* 20-24. This finding did not “rely on an interpretation of the [claimed adhesion property],” as Corning argues. Appellant's Br. at 43. The Board was weighing the evidence to determine whether the claims were satisfied, which is not an act of claim construction. *See Playtex Prods.*, 400 F.3d at 907 (“The need to make a difficult factual determination does not allow the court to surrender material that the patentee clearly and rightfully claimed.”).

How the Board weighs any particular evidence in evaluating what a reference discloses is part of the anticipation or obviousness analysis and reviewed as a question of fact. *See Teva I*, 723 F.3d at 1373-74; *Med. Instrumentation and Diagnostics*, 344 F.3d at 1221 (“[W]hat a reference teaches . . . is a question for the finder of fact.”). In *Teva I*, this Court reviewed a district court's judgment that a product infringed a claim that required a copolymer comprising four components in a ratio

of “approximately 6:2:5:1.” *Teva I*, 723 F.3d at 1373. This Court decided that the district court’s decision regarding the proper method for calculating variance from the “ideal” ratio of 6:2:5:1 was part of the infringement analysis and entitled to deferential review. *See id.* at 1374 (holding that the “district court did not clearly err” because there was “no basis for overturning the district court’s finding that the 6:2:5:1 ratio must be converted to percentages”).

In this case, the Board considered the description of the wet (95% RH) adhesion test in the ’189 patent and expert testimony about the nature of the test, *see* A17-19, A20-22, and found that it measured the mechanical force necessary to peel a coating from a glass substrate, A18-19, A22, not the ability to resist delamination caused by hydrodynamic forces. *See* A20-25. Even under Corning’s proposed construction of moisture, the 95% RH adhesion test is not relevant to show resistance to “delamination in the presence of moisture” because the presence of humidity is not causing any delamination. *See* A22 (discussing Dr. Winningham’s testimony regarding the “peel test” Corning employed).

Like the district court in *Teva I*, the Board made findings of fact regarding what evidence was sufficient to show that a claim term was satisfied. *See* A20-26. And, like the district court in *Teva I*, the Board is entitled to deferential review. *See, e.g., In re Gartside*, 203 F.3d at 1313-14.

3. Substantial Evidence Supports The Board's Finding That Corning's Peel Test Results Did Not Show Resistance to Hydrodynamic or Hydrolytic Forces That Cause Delamination.

Substantial evidence, including testimony from both DSM's expert and Corning's, supports the Board's decision that Corning's test results were insufficient to establish that Szum or Shustack inherently discloses the claimed adhesion property. *See Noelle v. Lederman*, 355 F.3d 1343, 1353 (Fed. Cir. 2004) (affirming Board decision based on expert testimony as supported by substantial evidence). Instead of addressing the considerable evidence supporting the Board's decision, Corning improperly asks this Court to reconsider evidence the Board already found unpersuasive. *See In re NTP*, 654 F.3d at 1292 ("This court does not reweigh evidence on appeal.").

a) The Evidence Supports the Board's Finding That Corning's Wet Adhesion Test Does Not Evaluate for Delamination Caused by Hydrolysis.

The record evidence shows that delamination can occur when coatings are exposed to water that can break down the adhesion between the inner primary coating and the surface of the glass in a process called hydrolysis.¹³ A1229 ¶ 92; A4323-24 ¶¶ 65-66. Coatings also can be forcibly removed from a glass substrate. *See, e.g.*, A4081 at 459:16-24. While it is possible to evaluate a coating's resistance to delamination from hydrolysis, on the one hand, and to mechanical forces, on the other, there are different tests for doing so.

A water soak delamination test may be used to evaluate “the ability of a coating to delaminate from a substrate when the film is exposed to water.” *Id.* at 460:5-11. Water soak delamination tests are performed without applying any “additional forces . . . to the film, mechanical forces.” *Id.* at 459:13-14. Accordingly, in a water soak delamination test, water alone is responsible for causing delaminations.

¹³ The process of delamination resulting from chemical forces due to exposure to water is called “hydrolysis.” *See, e.g.*, A4322 ¶ 64 (“[T]he results of a 60° C water soak delamination test are largely determined by the resistance of the adhesive bonds to hydrolysis.”).

See A4321 ¶ 62 (explaining that samples soaked in water are checked for delaminations); A3939 at 58:9-14, A4079 at 452:8-19 (explaining that water immersion testing, also called water delamination testing, involves submerging a sample in water, then removing it and examining it for delaminations), A4080 at 453:11-454:23 (explaining that the sample could completely delaminate, partially delaminate, or not delaminate at all).

In contrast to a water soak delamination test, “a peel test measures the resistance of [the coating-glass] bonds to a mechanical force applied to the coating.” A4324 ¶ 66. In a peel test, like Corning’s wet (95% RH) adhesion test, neither liquid water nor humidity cause delamination because “one is applying . . . a mechanical force to a film and pulling the film off a substrate.” A4081 at 459:16-18; see A3939 at 58:22-59:12 (equating a high humidity peel test with the “wet adhesion test related to the IPRs here”); A4086 at 479:23-480:13 (admitting the results relied on were measured by a peel test). Accordingly, as Dr. Winningham testified on cross-examination, the water soak delamination test and wet (95% RH) adhesion test measure different

properties of coating compositions. *See* A4081 at 460:17-19, 21 (“[T]hose tests . . . are looking at different things or measuring different things.”).

Corning’s argument that its wet (95% RH) adhesion results are relevant because the test includes “adhesion,” “moisture,” and “handling,” *see, e.g.*, Appellant’s Br. at 60-61, ignores the substantial evidence supporting the Board’s finding that the test does not evaluate for delamination caused by hydrolysis (*i.e.*, the “presence of moisture”), which is a necessary part of the claimed adhesion property. *See* A20-24. Because the Board’s decision is supported by substantial evidence, and Corning has failed to show otherwise, this Court should affirm. *See In re Gartside*, 203 F.3d at 1312.

b) The Board Properly Found Corning’s Evidence Unpersuasive.

In addition, the Board correctly decided Corning’s test results were insufficient because Corning had no “objective proof” that its results established that the Szum and Shustack coatings inherently possess the claimed adhesion property. A20-22 (citing A228; A235; A1251 ¶ 121; A1352-53 ¶ 144). The Board’s credibility determination is both supported and entitled to considerable deference. *See Comark Commc’ns v. Harris Corp.*, 156 F.3d 1182, 1192-1193 (Fed. Cir. 1998)

(“It is not the province of an appellate court to second guess the jury’s credibility determinations or to reevaluate the weight to be given the evidence.”); *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 294 (Fed. Cir. 1985) (finding lack of factual support for expert opinion “may render the testimony of little probative value in a validity determination”).

Corning fails to identify “objective proof” supporting the alleged relevance of its test results or any other justification for disregarding the Board’s credibility determinations. The testimony from Dr. Winningham’s reply declaration (*see* Appellant’s Br. at 57 n.7 (citing A3097 ¶19) does not add any objective proof; it merely asserts relevance. Moreover, the Board relied on Dr. Winningham’s contrary deposition testimony and found that a wet (95% RH) adhesion test measures mechanical forces that are used to remove a film from a glass substrate. A22. In contrast, a water soak delamination test, which assesses resistance to delamination from “hydrodynamic forces,” A18-19, is a “different test[]” that measures a “different thing[]” than the test Corning used. A22.

Corning also re-urges its argument based on Table 3 of the '189 patent (*see* Appellant's Br. at 58), but provides no reason to consider that argument, which the Board correctly deemed waived. The Board's rules and regulations include a restriction that "[n]o new evidence or arguments may be presented at the oral argument." Office Patent Trial Practice Guide, 77 Fed. Reg. 48756, 48768 (Aug. 14, 2012). Because the legislature explicitly delegated authority to the Director to prescribe regulations governing *inter partes* review and providing a right to oral argument, *see* 35 U.S.C. § 316(a)(4), (10), the Board's regulation controls "unless [it is] arbitrary, capricious, or manifestly contrary to the statute." *Chevron USA Inc. v. Natural Res. Defense Council, Inc.*, 467 U.S. 837, 843-44 (1984). The Board's regulation prohibiting new argument after the close of briefing is hardly arbitrary or capricious; this Court has similar precedent regarding arguments not raised in an opening brief, as the Board noted. *See* A23 (citing *Cross Med. Prods., Inc. v. Medtronic Sofamor Danek, Inc.*, 424 F.3d 1293, 1320-21 n.3 (Fed. Cir. 2005)). Because Corning waived its "Table 3" argument before the Board, this Court need not consider it.

Even considering the argument's merits, Corning fails to provide any "convincing, objective evidence" to explain the asserted relationship between its test results and the results of a water soak delamination test, which the Board found fatal. A23. Corning's reliance on the reference to Table 3 in Dr. Taylor's declaration, *see* Appellant's Br. at 58-59, is misplaced. Dr. Taylor cited Table 3 to rebut testimony in Dr. Winningham's declaration (*see* A1352-53 ¶ 144) that a 23 g/in wet adhesion value satisfied claimed adhesion property because it was twice as high as anything the '189 patent disclosed. A4383 ¶ 177. Dr. Taylor explained that Dr. Winningham's testimony was wrong because Table 3 showed that a wet (95% RH) adhesion value around 20 g/in was **not** an indication that the coating would resist delamination in the presence of moisture. *Id.* (citing A94 at 29:42-50, Table. 3). Far from supporting Corning's argument, Dr. Taylor's testimony undermines it.

Corning's arguments therefore offer no basis to disturb the Board's finding that the wet (95%) adhesion test results were insufficient to show the claimed adhesion property was inherent in either Szum Example 5B or Shustack Example I.

4. Even Understood as Claim Construction, the Board's Decision Is Based on Factual Findings from Extrinsic Evidence and Therefore Entitled to Deference.

Even assuming, all evidence to the contrary, that the Board's decision that Corning's test evidence was insufficient to show "sufficient adhesion to said glass fiber to prevent delamination in the presence of moisture and during handling" was a claim construction ruling, that does not affect the outcome in this case. The Board's decision is based on a finding of fact, supported by extrinsic evidence, that the results of a wet adhesion described in the '189 patent were not shown to "correspond to an ability to withstand hydrodynamic forces that effect delamination." A21; *see* A21-23 (discussing expert testimony regarding the so-called "peel test"). That finding is entitled to deferential review. *See In re Cuozzo Speed Techs.*, 2015 U.S. App. LEXIS 1699, at *24 (citing *Teva II*, 135 S. Ct. at 841). And, for the reasons stated above, that finding is supported by substantial evidence.

Properly taking into account the Board's finding that the wet adhesion test does not assess for delamination caused by "hydrodynamic forces," that test cannot be sufficient to show the claimed adhesion property is present under any reasonable

interpretation. The claim requires that the adhesion “prevent delamination” resulting from “the presence of moisture.” A115 at 71:60-62. If the wet adhesion test does not assess for delamination caused by hydrolysis, it cannot show whether hydrolytic delamination has been prevented, and Corning’s proposed “construction” is unreasonable. *See In re Buszard*, 504 F.3d 1364, 1367 (Fed. Cir. 2007) (rejecting claim interpretation as unreasonable where it equates different and opposite concepts).

B. The Board’s Construction of “Moisture” Was Correct.

In addition to the reasons discussed above, the Board found that Corning failed to prove either Szum or Shustack inherently disclose coatings satisfying the claimed adhesion property based on its construction of “moisture” to mean “liquid water.”¹⁴ *See* A19-20. Corning does not challenge the sufficiency of the evidence supporting the Board’s findings of fact.

¹⁴ The Board did not, as Corning argues, “superimpose[] . . . an immersion in liquid water requirement,” Appellant’s Br. at 19, and it would be irrelevant if it did. The Board found, and Corning does not dispute, that the test Corning used did not expose coatings to liquid water at all. A20.

The Board correctly determined the broadest reasonable interpretation of “moisture” is “liquid water” because that construction is consistent with the ordinary and customary meaning to a person of ordinary skill in the art in view of the specification. *See In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007) (“The ordinary and customary meaning ‘is the meaning that the term would have to a person of ordinary skill in the art in question.’”) (quoting *Phillips*, 415 F.3d at 1313). Because that construction is correct, the Board’s judgment denying cancellation of claims 1-4 and 9-12 should be affirmed.

1. The Board Correctly Construed Moisture in View of the Specification.

The intrinsic evidence supports the Board’s construction of “moisture,” as read in the context of the claim limitation “sufficient adhesion . . . to prevent delamination in the presence of moisture,” to mean “liquid water.” At the very least, the ’189 patent uses “moisture” as distinct from “humidity,” which Corning incorrectly asserts is encompassed within the ordinary meaning of “moisture.” *See Appellant’s Br.* at 46-47.

The purpose of the invention suggests that the claims are concerned with preventing delamination in the presence of liquid water. The '189 patent notes the importance of preventing delamination, and warns of the "possibility of . . . undesirable delamination, especially in the presence of moisture." A80 at 2:47-54. The claimed invention is meant to survive being deployed under water. A113 at 67:53-55 *see also* A4303 ¶ 30 (testifying that installed coated optical fibers "would need to survive" exposure to "all weather and all seasons in all manner of climates," being "immersed in water for extended periods of time," and being "exposed to wind and weather").

Consistent with the need for the invention to prevent delamination under severe conditions that include prolonged exposure to liquid water, the '189 patent describes demonstrating the "resistance to delamination" of coatings by subjecting them to a water soak delamination test. *See* A93 at 27:18-46. *Accord* A18-19. Delamination results are reported based on how long it takes for delamination, if any, to appear. *See* A93-94, 27:66-28:10, 29:45-52. *Accord* A18-19. The specification also describes the coatings that perform well as having "hydrolytic interfacial adhesion." *See* A93 at 28:30. This disclosure

further supports the Board's conclusion that "sufficient adhesion . . . to prevent delamination in the presence of moisture" refers to the coating's ability to resist delamination in the presence of "liquid water."

As the intrinsic evidence shows, the claimed invention should be able to survive exposure to liquid water. Corning fails to identify any compelling evidence, intrinsic or extrinsic, why surviving mere humidity would be understood by a person of ordinary skill in the art to be "sufficient." After all, Corning does not argue that "moisture" is so narrow that it excludes liquid water. Thus, if a coating delaminates in the presence of liquid water, the adhesion to the glass did not "prevent delamination in the presence of moisture."

Accordingly, the Board properly found that the use to which the invention would be put supports the conclusion that the any reasonable construction of "sufficient adhesion . . . to prevent delamination in the presence of moisture" requires a composition to resist delamination in the presence of liquid water. *See Leo Pharm. Prods. Ltd. v. Rea*, 726 F.3d 1346, 1352 (Fed. Cir. 2013) (construing "storage stable," in part, by reference to the "shelf life" of the claimed combination composition "for its intended use"). *Accord* A8. Corning faults the Board for not

considering evidence regarding the effect of “matrix material” and “cable jacketing or sheathing” in its analysis, *see* Appellant’s Br. at 54, but Corning can identify no such evidence presented to the Board, *see id.*, because there was none.

The Board also considered other uses of the term “moisture” in the specification, which suggested that “moisture” was used to refer to liquid water. *See* A8-9 (citing A93 at 28:65-67; A97 at 35:17-18). At the very least, the ’189 patent distinguishes “moisture” from “humidity” and “atmospheric moisture.” *See id.* (citing A90 at 21:47; A93 at 28:48, 60, 65). Even assuming “moisture” encompasses “atmospheric moisture,” that is still consistent with Board’s construction because condensation of moisture in the atmosphere begins at conditions of 100% relative humidity. A4320 ¶ 61.

None of these disclosures, nor any of the others cited by Corning, suggest that it would be “sufficient” for the claimed coating to “prevent delamination” in the presence of humidity but not in the presence of liquid water. Rather, such a construction would be at odds with the express disclosure of the ’189 patent, which the Board considered.

2. The Extrinsic Evidence Also Supports the Board's Construction of Moisture.

The extrinsic evidence supports the conclusion that the ordinary and customary meaning of “moisture” refers to liquid water. The Board's claim construction was based in part on its consideration of the extrinsic evidence, *see* A8 (citing A517-20; A4319-4324 ¶¶ 59-66), and the factual findings underlying that determination are therefore subject to substantial evidence review. *In re Cuozzo Speed Techs.*, 2015 U.S. App. LEXIS 1699, at *24. Dr. Taylor testified that “[a] person of ordinary skill in the art would understand the phrase ‘in the presence of moisture’ to refer to the fiber being exposed to liquid water.” A4320 ¶ 60. Dr. Winningham, Corning's employee expert, used the word “moisture” in the same way, further demonstrating that its ordinary meaning to one of skill in the art refers to liquid water:

Q. What does a wet pullout test refer to?

A. A wet pullout test refers to a fiber sample that has been exposed to moisture

Q. When you say “exposed to moisture,” what do you mean?

A. I believe fibers – I'm going on recollection -- I believe **the fibers are soaked in water.**

A4077 at 443:10-20 (emphasis added). This further supports the Board's conclusion that the ordinary and customary meaning of the phrase "sufficient adhesion to said glass fiber to prevent delamination in the presence of moisture" requires exposure to liquid water. A8-9.

Corning's argument to the contrary relies on a misreading of Dr. Taylor's testimony that "moisture condenses at 100% relative humidity." See Appellant's Br. at 49 (citing A4320 ¶ 61). In the very same paragraph Corning cites, Dr. Taylor testified that, under the conditions of the wet (95% RH) adhesion test Corning performed, "there will be **no moisture** condensation on the surface of the coating." A4320 ¶ 61 (emphasis added). This is completely consistent with Dr. Taylor's opinion and the Board's construction that "moisture" refers to the liquid (*i.e.*, condensed) form of water.

The only other extrinsic evidence of record Corning finds to argue in support of its position is deposition testimony from Dr. Taylor about an article that, itself, is not in the record. Tr. of Hr'g, IPR2013-00045, Paper No. 89, at 6:1-12 (Feb. 11, 2014) [corresponding to A849 in Joint App'x of Case No. 2014-1730 in this Court]. Dr. Taylor had limited involvement in the article, and admitted that he may not have written

any of it. A2191 at 474:18-21; A4192 at 478:13-20. Nevertheless, Corning's counsel asked Dr. Taylor about language in the article that Dr. Taylor testified he did not write and would not have used. A2192 at 477:3-7, 478:8-12; A2193 at 479:11-17. Given Dr. Taylor's limited involvement in the article and the fact that it was not evidence of record, his testimony about it has no probative value, and the Board was reasonable to not give it any weight. *See Yorkey*, 601 F.3d at 1284 (deferring to "reasonable" credibility judgment).

Corning also offers dictionary definitions that were never presented to the Board and therefore untimely. This Court has said that its "review is confined to the record on appeal." *Jaskot v. Principi*, 58 F. App'x 839, 841 (Fed. Cir. 2002) (citing *Hayes v. Dep't of the Navy*, 727 F.2d 1535, 1537 (Fed. Cir. 1984)). And Corning may not raise new arguments on appeal without showing justification, *see, e.g., L.E.A. Dynatech, Inc. v. Allina*, 49 F.3d 1527, 1531 (Fed. Cir. 1995), which Corning has not shown.

Moreover, general purpose dictionaries, like those Corning presents, are less reliable than "the remainder of the specification . . . and extrinsic evidence concerning . . . the meaning of technical terms,

and the state of the art,” *Phillips*, 415 F.3d at 1314, which the Board considered, and which supported the Board’s construction. Because the Board’s construction of “moisture” was correct, its judgment should be affirmed as to claims 53-55 and 59-61 of the ’189 patent.

CONCLUSION

For the reasons set forth herein, the Board’s decision denying Corning’s petition to cancel claims 53-66 of the ’189 patent should be affirmed.

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Respectfully submitted,

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CERTIFICATE OF SERVICE

I, Sharon A. Israel, hereby certify that on March 23, 2015, I served a copy of the foregoing Brief of Appellee DSM IP Assets B.V. via the Court's electronic filing system to:

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CERTIFICATE OF COMPLIANCE

Pursuant to Federal Rule of Appellate Procedure 32(a)(7)(C), I hereby certify on this 23rd day of March, 2015, that the foregoing Brief of Appellee DSM IP Assets B.V. complies with the relevant type-volume limitation of Federal Rule of Appellate Procedure 32(a)(7)(B). This brief is typed in Century Schoolbook (14 point) and contains 13,038 words according to the Microsoft Word 2010 system used to prepare it, excluding those items exempted by the Federal Rule of Appellate Procedure 32(a)(7)(B)(iii) and Federal Circuit Rule 32(b).

Dated: March 23, 2015

By: /s/Sharon A. Israel
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